

WHAT IS CLAIMED IS:

1. A measuring device for viewing an object disposed in a difficult to view area and for measuring a distance between first and second points on the object,  
5 said measuring device comprising:

a support structure;

a mirror mounted to the support structure;

an elongated measuring instrument mounted to the support structure and having a series of graduations designating units of measurement, said

10 graduations extending along a length of the measuring instrument;

a laser device movably mounted to the support structure and operable to generate a laser beam, said laser device being positioned relative to the mirror such that when the laser beam is generated, the laser beam strikes the mirror and is reflected, thereby dividing the laser beam into a first portion extending  
15 from the laser to the mirror and a second portion extending from the mirror outward, said laser device being movable along a measurement path extending parallel to the length of the measuring instrument, wherein movement of the laser device along the measurement path causes the second portion of the light beam to move in a travel path disposed perpendicular to the measurement path;

20 wherein the measuring device is adapted for placement in a viewing position, wherein an image of the object is formed in the mirror; and

wherein when the measuring device is disposed in the viewing position, the distance between the first and second points on the object is measured by placing the laser device in a first measurement position that places the second  
25 portion of the laser beam at the first point on the object and then moving the laser device along the measurement path to a second measurement position that places the second portion of the laser beam at the second point on the object, wherein the distance between the first and second measurement positions is determined using the measuring instrument and provides a measure of the  
30 distance between the first and second points on the object.

2. The measuring device of claim 1, further comprising a light source mounted to the support structure and operable to generate at least one light beam, said light source being positioned relative to the mirror such that when the at least one light beam is generated, the at least one light beam strikes the mirror and is reflected outward, wherein when the measuring device is disposed in the viewing position and the at least one light beam is generated, the at least one light beam illuminates the area around the object.

3. The measuring device of claim 2, wherein the light source comprises a pair of flashlights and the at least one light beam comprises a pair of light beams generated by the flashlights, respectively.

4. The measuring device of claim 3, wherein the flashlights are spaced apart so as to form spaced-apart light beam images in the mirror.

5. The measuring device of claim 1, wherein the support structure at least partially defines first and second openings, and wherein the mirror is positioned so as to reflect light between the first and second openings.

6. The measuring device of claim 1, wherein the support structure comprises a pair of side frames having at least one cross member extending transversely therebetween.

7. The measuring device of claim 6, wherein a carriage is mounted to the at least one cross member so as to be movable between the side frames, and wherein the laser device is mounted to the carriage.

8. The measuring device of claim 7, wherein the laser device is mounted to the carriage so as to be movable relative to the carriage in a direction perpendicular to the direction between the side frames.

9. The measuring device of claim 6, wherein the side frames comprise base members, respectively, for supporting the measuring device on a surface, said base members defining a support plane of the measuring device.

5           10. The measuring device of claim 9, wherein the mirror is mounted to the support structure so as to be disposed at about a 45° angle to a plane disposed parallel to the support plane of the measuring device.

11. The measuring device of claim 10, wherein the first portion of the laser  
10 beam extends about perpendicular to the support plane of the measuring device.

12. The measuring device of claim 1, wherein the first portion of the laser beam is disposed about perpendicular to the second portion of the laser beam.

15           13. The measuring device of claim 1, wherein the laser device is a class 3a laser.

14. A measuring device for viewing an object disposed in a difficult to view area and for measuring a distance between first and second points on the  
20 object, said measuring device comprising:

          a support structure including:

                  a pair of spaced-apart frames defining a first spacing therebetween;

                  a pair of spaced-apart upper cross members extending transversely  
          between the frames, said upper cross members defining a second spacing  
25 therebetween; and

                  a carriage movably mounted to the cross members;

          a mirror mounted to the support structure and positioned to reflect light  
between the first and second spacings;

          an elongated measuring instrument mounted to the carriage and having a  
30 series of graduations designating units of measurement, said graduations  
extending along a length of the measuring instrument;

a laser device mounted to the carriage for movement relative thereto and operable to generate a laser beam, said laser device being positioned relative to the mirror such that when the laser beam is generated, the laser beam strikes the mirror and is reflected, thereby dividing the laser beam into a first portion

5 extending from the laser to the mirror and a second portion extending from the mirror outward through the first spacing, said laser device being movable along a measurement path extending parallel to the length of the measuring instrument, wherein movement of the laser device along the measurement path causes the second portion of the laser beam to move in a travel path disposed perpendicular  
10 to the measurement path;

wherein the measuring device is adapted for placement in a viewing position adjacent to the object, wherein the first spacing is aligned with the object such that an image of the object is formed in the mirror, said image being viewable through the second spacing; and

15 wherein when the measuring device is disposed in the viewing position, the distance between the first and second points on the object is measured by placing the laser device in a first measurement position that places the second portion of the laser beam at the first point on the object and then moving the laser device along the measurement path to a second measurement position that  
20 places the second portion of the laser beam at the second point on the object, wherein the distance between the first and second measurement positions is determined using the measuring instrument and provides a measure of the distance between the first and second points on the object.

25 15. The measuring device of claim 14, wherein the support structure further comprises a pair of spaced-apart lower cross members extending transversely between the frames, and wherein the mirror is connected to a rear one of the lower cross members.

30 16. The measuring device of claim 15, further comprising a light source mounted to a front one of the lower cross member and operable to generate at least one light beam, said light source being positioned relative to the mirror such

that when the at least one light beam is generated, the at least one light beam strikes the mirror and is reflected outward, wherein when the measuring device is disposed in the viewing position and the at least one light beam is generated, the at least one light beam illuminates the area around the object.

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17. The measuring device of claim 16, wherein the light source comprises a pair of flashlights and the at least one light beam comprises a pair of light beams generated by the flashlights, respectively.

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18. The measuring device of claim 17, wherein the flashlights are spaced apart so as to form spaced-apart light beam images in the mirror.

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19. The measuring device of claim 16, wherein the side frames comprise base members, respectively, for supporting the measuring device on a surface, said base members defining a support plane of the measuring device.

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20. The measuring device of claim 19, wherein the support structure further comprises at least one holding structure secured to the rear one of the lower cross members, said at least one holding structure holding the mirror so as to be disposed at about a 45° angle to a plane disposed parallel to the support plane of the measuring device.

21. A method of measuring a distance between first and second points on an object, said method comprising the steps of:

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generating a laser beam;

reflecting the laser beam such that the laser beam is divided into first and second portions that are disposed at a right angle to each other;

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moving the first portion of the laser beam along a measurement path to a first measurement position that places the second portion of the laser beam at the first point on the object;

moving the first portion of the laser beam along the measurement path to a second measurement position that places the second portion of the laser beam at the second point on the object; and

measuring the distance between the first and second measurement  
5 positions, which provides a measure of the distance between the first and second points on the object.

21. The method of claim 21, further comprising the steps of generating at least one light beam and reflecting the at least one light beam so as to illuminate  
10 the area around the object.

22. The method of claim 21, wherein the steps of reflecting the laser beam and the at least one light beam is performed using a mirror.

15 23. The method of claim 22, wherein the angle of incidence of the laser beam striking the mirror is greater than the angle of incidence of the at least one light beam striking the mirror.

24. The method of claim 23, wherein the angle of incidence of the laser  
20 beam striking the mirror is about 45°.

25. The method of claim 21, wherein the measurement path is a straight line.

25 26. The method of claim 25, wherein the step of measuring the distance between the first and second measurement positions is performed using a ruler.

27. The method of claim 21, wherein the first portion of the laser beam extends vertically and the second portion of the laser beam extends horizontally.  
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28. The method of claim 27, wherein the object is a paint accumulation formed on a bottom wall of a lower weir of a cleaning apparatus in a paint spray booth, and wherein the paint accumulation extends vertically.